

XENOCHIRONOMUS KIEFFER FROM CHINA (DIPTERA, CHIRONOMIDAE)

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Abstract *Xenochironomus* Kieffer from China including 3 species is reviewed. One new species *X. glaber* sp. nov., is described and illustrated. *X. canterburyensis* (Freeman) is recorded from China for the first time. A key to the males of *Xenochironomus* in China is given.

Key words Chironomidae, *Xenochironomus*, new species, new record, China

1 Introduction

The genus *Xenochironomus* was erected by Kieffer in 1921, with *Chironomus xenolabis* Kieffer, 1916 as type species. Roback (1963) divided the genus into two subgenera *Xenochironomus* and *Ancaus*. Subsequently, in 1980, he replaced *Ancaus* with *Axarus*. Pinder & Reiss (1983) elevated the subgenus *Axarus* to a separate genus (Ash 1983). According to Cranston *et al.* (1989), the discrimination between *Xenochironomus* and *Axarus* is still required for Holarctic species, including those from the Eastern Palearctic, other than the Holarctic *X. xenolabis* Kieffer. In addition, the species assigned to *Xenochironomus* from other zoogeographic regions also needs further investigation.

Up to date, the genus comprises 13 recorded species worldwide: 1 species in Holarctic Region (*X. xenolabis* (Kieffer, 1916)), 9 in Oriental Region (*X. flaviventris* (Kieffer, 1911), *X. lacertus* Dutta & Chaudhuri, 1995, *X. loripes* Guha & Chaudhuri, 1981, *X. longioris* (Kieffer, 1911), *X. nigricaudus* Hashimoto, 1981, *X. tenuiforceps* (Kieffer, 1913), *X. trochanteratus* (Thomson, 1869), *X. tuberosus* Wang, 2000 and *X. xenolabis* (Kieffer, 1916)), 2 in Afrotropical Region (*X. tristatus* (Kieffer, 1922) and *X. ugandae* (Goetghebuer, 1936)), 2 in Neotropical Region (*X. ceciliae* Roque & Trivinho-Strixino, 2005 and *X. xenolabis* (Kieffer, 1916)) and 1 in Australasian Region (*X. canterburyensis* (Freeman, 1959)).

Based on the material from China, the present paper provides descriptions of one new species and one new recorded species from China. And a key to male of *Xenochironomus* from China is presented.

2 Materials and Methods

The morphological nomenclature follows Sæther (1980). The material examined was mounted on slides in Canada balsam, following the procedure

outlined by Sæther (1969). Measurements are given as ranges followed by the arithmetic mean, when there are three or more measurements, followed by the number measured (*n*) in parentheses. The type specimens described in this paper are deposited in the Department of Biology, Nankai University, China (BDN).

Key to adult males of *Xenochironomus* in China

1. Frontal tubercle present *X. tuberosus* Wang
Frontal tubercle absent 2
2. Median anal tergite setae in two delimited areas, R_{4+5} with 17 setae
Superior volsella pediform *X. canterburyensis* (Freeman)
Median anal tergite setae in one area, R_{4+5} without setae, Superior volsella short and wide *X. glaber* sp. nov.

3 Species Descriptions***Xenochironomus canterburyensis* (Freeman) New record to China (Figs 1-2)**

Chironomus (*Dirotandipes*) *canterburyensis* Freeman, 1959: 425. Forsyth, 1971: 128.

Xenochironomus canterburyensis Forsyth & McCallum, 1978a: 331, 1978b: 795; Forsyth, 1979: 467.

Material examined: 9 males, China, Jiangxi Province, Poyang Lake, Nanji Mountain area, 12 June 2004, light trap, leg. LIU Zheng.

Diagnosis: Median anal tergite setae in two delimited areas. Superior volsella pediform, bent medially, microtrichiose, with setae directed to median.

Male imago ($n = 9$).

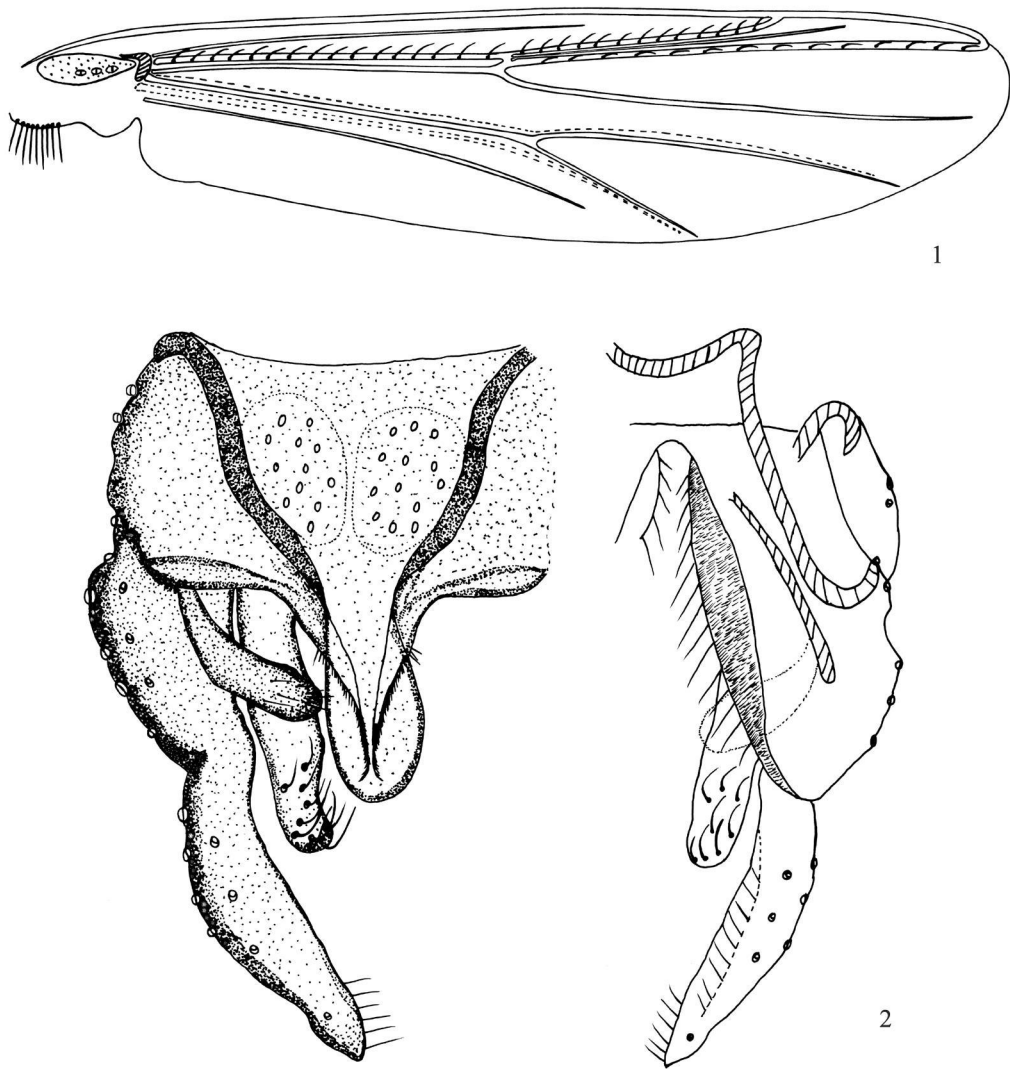
Total length 2.95-5.05, 4.22 mm. Wing length 1.78-2.58, 2.28 mm. Total length / wing length 1.66-2.03, 1.85. Wing length / length of profemur 1.97-2.21, 2.08.

Coloration: Head brownish; antenna brown; Thorax brownish; Abdomen yellowish-green. Front legs: trochanter, femur and tibia greenish-yellow, tibia brownish at tip; tarsomeres brown. Middle and hind

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Figs 1-2 *Xenodironomus anterburyensis* 1 Wing 2 Hypopygium.

legs trochanter, femur and tibia greenish-yellow with dark brown tibial comb; tarsomeres brown.

Head AR 2.20-3.16 2.71. Temporal setae 10-19, 15. Clypeus with 12-21, 16 setae. Palpomere lengths (in μm): 38-50, 43, 45-63, 54; 113-180, 158, 95-140, 123, 133-180, 155. Palpomere length $5^{\text{th}}/3^{\text{rd}}$ 0.91-1.18, 0.99.

Wing (Fig 1). Wing width 500-690, 617 μm . VR 1.08-1.16, 1.13. Branchiolum with 3 long setae. R with 13-26, 19 setae. R_1 with 9-22, 17 and R_{4+5} with 13-24, 18 setae. Squama with 7-15, 11 fringed setae. Two intercalary veins on both sides of Cu from the base.

Thorax Dorsocentrals 7-13, 10; acrostichals 12-26, 17; prealars 5-7, 6; scutellum with 10-15, 13 setae.

Legs The posterior edge of front tibia with 5 strong setae. Tarsomere 1 of mid leg with 12-24, 17 and hind leg with 5-9, 6 sensilla chaeticae. Spurs on

median tibiae 25-35, 30 μm and 30-35, 33 μm long. Spurs on hind tibia 25-33, 29 μm and 30-40, 36 μm long. Width at apex of front tibia 65-85, 75 μm , of middle tibia 63-90, 80 μm , of hind tibia 65-90, 80 μm . Lengths (in μm) and proportions of legs (Table 1).

Hypopygium (Fig 2). Tergite IX with 26-34, 30 long setae in two delimited areas; laterostemite IX with 2-4, 3 setae. Phallapodeme 108-133, 118 μm long. Transverse stemapodeme 55-100, 76 μm long. Superior volsella pediform, 93-113, 99 μm , microtrichiose with setae directed to median. Inferior volsella 178-245, 220 μm long. Apical portion with 6-10, 8 curved long setae in the Gonocoxite 203-240, 223 μm long. Gonostylus 165-230, 203 μm long. HR 0.99-1.30, 1.13. HV 1.87-2.28, 2.17.

Remarks The species has been described in detail by Forsyth 1979. The Chinese specimens have some variation in the following characters (Table 2).

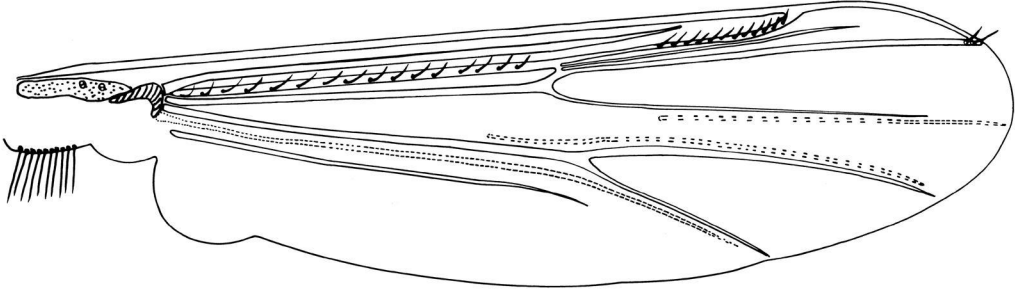
Table 1 *Xenochironomus canterburyensis* lengths and proportions of legs

	p_1		p_2		p_3	
fe	900-1200	1103	750-1175	1015	925-1375	1196
ti	650-1013	868	675-1075	917	925-1400	1206
ku_1	1025-1525	1331	400-600	536	650-950	847
ku_2	575-825	723	250-375	323	363-550	485
ku_3	475-675	584	150-250	220	220-400	334
ku_4	400-575	486	80-125	109	110-188	151
ku_5	150-225	189	75-113	96	90-125	113
LR	1.43-1.63	1.55	0.56-0.61	0.59	0.68-0.73	0.70
BV	1.03-1.72	1.59	3.22-3.45	3.30	2.91-3.43	3.03
SV	1.35-1.53	1.47	3.48-3.70	3.60	2.70-2.94	2.83
BR	1.88-3.61	2.54	2.16-3.94	3.15	4.15-5.20	4.41

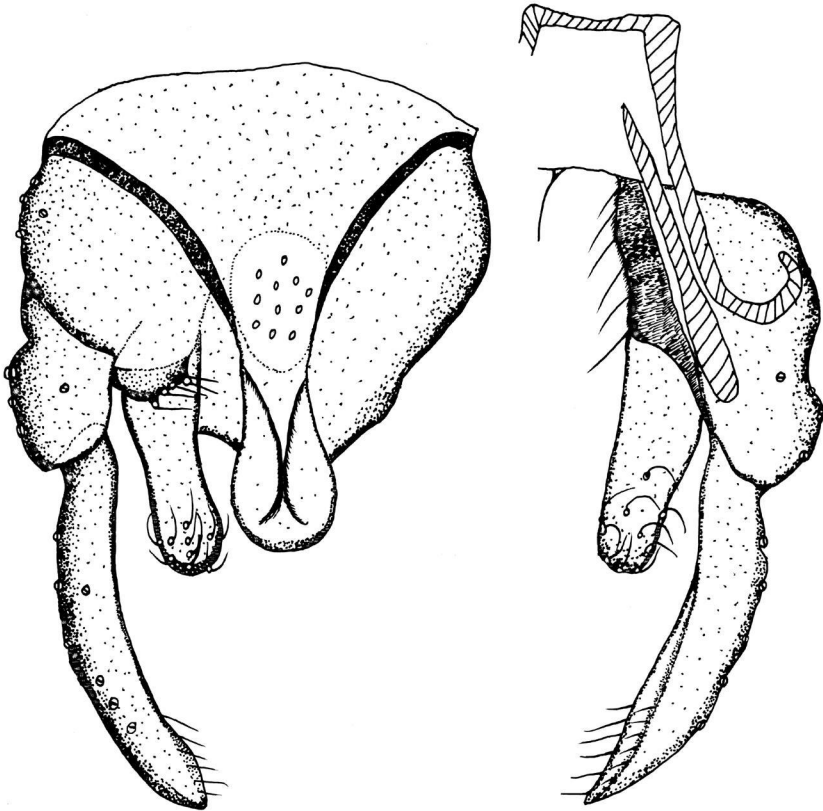
Table 2 The variation between the Chinese and the New Zealand specimen

	The Chinese specimens	The New Zealand specimens
WL	1.78-2.58, 2.28	2.60-4.50, 3.50
AR	2.20-3.16, 2.71	2.20-3.30, 2.80
VR	10.8-1.16, 1.13	1.01-1.08, 1.04
LR_1	1.43-1.63, 1.55	1.20-1.50, 1.40

Based on the description and figures of Forsyth 1979, we find the species *X. ceciliae* erected by Roque and Trivinho-Strixino in 2005 is very close with *X. canterburyensis* (Freeman), it could be regarded as a synonym after checking type specimen.



3



4

Figs 3-4. *Xenochironomus glaber* sp. nov. 3 Wing 4 Hypopygium.

Distribution The species was previously recorded in New Zealand (Freeman 1959). The present study shows the species is recorded in Oriental China for the first time thus the species has Australian and Oriental distribution.

Xenochironomus glaber sp. nov. (Figs 3-4)

Diagnosis The male imago can be distinguished from other known species of the genus by the following combination of characters: R_{4+5} without setae; ending of M_{1+2} distant from wing margin; median anal tergite setae in one area; superior volsella short and wide.

Male imago ($n=1$).

Total length 3.73 mm. Wing length 2.03 mm. Total length / wing length 1.84. Wing length / length of profemur 1.84.

Cobration Head brownish; antenna brown; Thorax brownish; abdomen yellowish. Front legs femur brownish; tibia brownish with an apical dark brown band; tarsomeres brown. Middle and hind legs femur and tibia greenish yellow with brown tibial comb; tarsomeres brown.

Head AR 2.86. Temporal setae 17. Clypeus with 20 setae. Tentorium 130 μ m long, 30 μ m wide. Palpomere lengths (in μ m): 48, 45, 220, 170, 230. Palpomere length $5^{th}/3^{rd}$ 1.05.

Wing (Fig. 3). Wing width 575 μ m. VR 1.11. Branchiolum with 2 long setae. R with 16 setae; R_1 with 12 setae; R_{4+5} without setae. Ending of R_{4+5} with Costa with 2 setae. M_{1+2} ending distant from wing margin. One intercalary vein below proximal 1/3 of M_{1+2} . Squama with 10 fringed setae.

Thorax Dorsocentrals 12; acrostichals 20; prealars 5. Scutellum with 11 setae.

Table 3 *Xenochironomus glaber* sp. nov. lengths and proportions of legs

	p_1	p_2	p_3
fe	1 100	900	1 050
ti	825	825	1 075
tu_1	1 288	490	675
tu_2	650	270	375
tu_3	550	190	275
tu_4	500	110	150
tu_5	200	70	88
LR	1.56	0.59	0.63
BV	1.69	3.46	3.15
SV	1.5	3.52	3.15
BR	2	2.46	3.86

Legs The posterior edge of front tibia with 3 strong setae. Tarsomere 1 of mid leg with about 10 sensilla chaeticae. Spurs on median tibiae 35 μ m and 38 μ m long; spurs on hind tibia 33 μ m and 43 μ m long. Width at apex of front tibia 50 μ m, of middle tibia 40

μ m, of hind tibia 60 μ m. Lengths (in μ m) and proportions of legs (Table 3).

Hypopygium (Fig. 4). Anal point broad, dorsal lamella curved down. Tergite IX with about 11 long setae in a tight delimited area. Laterostemite IX with 4 setae. Phallapodeme 110 μ m long, transverse stemapodeme 50 μ m long. Superior volsella very short and wide with 5 inwardly directed long setae. Inferior volsella 163 μ m long, apical portion with 11 curved long setae in the Gonocoxite 133 μ m long. Gonostylus 180 μ m long. HR 0.73. HV 2.07.

Holotype male (BDN No. 20899), China, Fujian Province, Yongtai County (25.8° N, 118.9° E), Forestry Bureau, 17 Sep. 2002, light trap leg. LIU Zheng.

Etymology. The species name, from Latin *glaber*, hairless, refers to R_{4+5} without setae.

Remarks Among described species of the genus, the present new species is close to *X. xenolabis* in the structure of hypopygium, but can be separated from the following characters (Table 4).

Table 4 The discrimination between *X. glaber* and *X. xenolabis*.

	<i>X. glaber</i> sp. nov.	<i>X. xenolabis</i>
R_{4+5}	Without setae	Setose
M_{1+2} ending	Away from wing margin	Arriving at wing margin
Sensilla chaetica of mid leg	10	30
Sensilla chaetica of hind leg	0	5
Pseudospurs	Without pseudospurs	Narrow pseudospurs

Distribution The new species was collected in a subtropical mountain area in Fujian Province (Oriental China).

Xenochironomus tuberosus Wang

X. tuberosus Wang 2000b: 223, Figs 1-3; Roque & Trivinho-Strixino 2005: 232.

Material examined 1 male, China, Hainan Province, Ledong County, Jianfengling Natural Conservation, 15 Apr. 1988, WANG Xin-Hua.

Diagnosis Separable from other species of the genus by having frontal tubercle; unusual thick setae on tergite VI; characteristic chaetotaxy on tergite IX and unique superior volsella.

Remarks The species is known from Oriental China.

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中国异摇蚊属记述 (双翅目, 摇蚊科)

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摘 要 记述中国异摇蚊属 *Xenochironomus* 3种, 包括 1新种 *X. glaber* sp. nov. 和 1中国新纪录种 *X. anteburyensis*, 编制了中国本属 3种雄成虫检索表。

裸脉异摇蚊, 新种 *X. glaber* sp. nov. (图 3~ 4)

雄虫与本属其它已知种主要区别如下: R₄₊₅脉无刚毛, M₁₊₂脉末端未伸达翅缘, 第 9背板中刚毛仅集中在一个区

关键词 摇蚊科, 异摇蚊属, 新种, 新纪录, 中国.

中图分类号 Q969. 442. 6

域, 上附器宽短。模式标本存放在南开大学生命科学学院摇蚊研究室。

正模 ♂, 福建永泰县林业局, 2002-09-17, 灯诱, 刘政采。

词源: 新种据其特征 R₄₊₅脉无刚毛而定名。

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